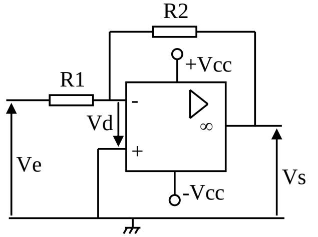
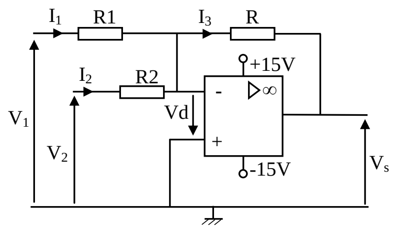
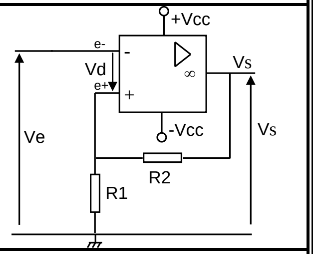
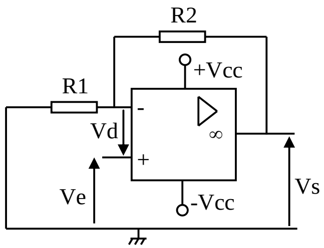
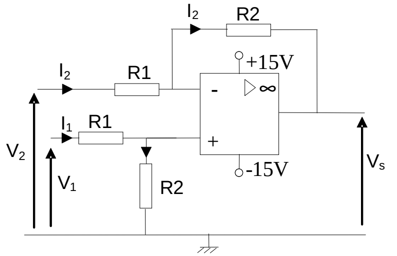
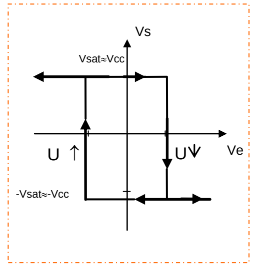
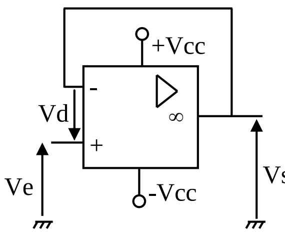
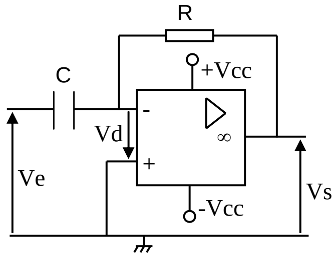
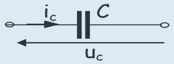
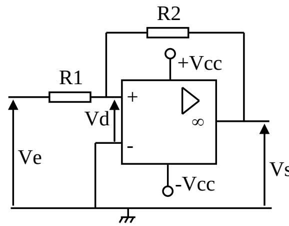
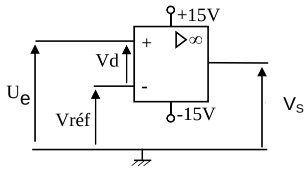
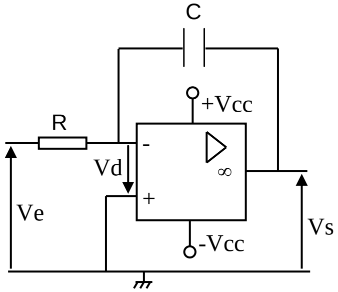
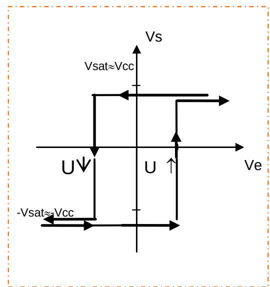
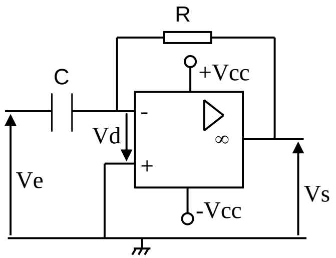
Tous les A.L.I sont supposés parfaits

Nom	Montage	Equation	Nom	Montage	Equation	Nom	Montage et Equation
Amplificateur inverseur		$Vs = -\frac{R2}{R1}.Ve$	**Sommateur inverseur**		$Vs = -R.\times\left(\frac{V1}{R1}+\frac{V2}{R2}\right)$ Si R1=R2 =R $Vs = -(V1+V2)$	**Comparateur inverseur double Seuils symétrique**	
Amplificateur non inverseur		$Vs = \left(1+\frac{R2}{R1}\right)\times Ve$	**Amplificateur différentiel (soustracteur)**		$Vs = -\frac{R2}{R1}\times(V1-V2)$ Si R1=R2 $Vs = (V1-V2)$		
Suiveur		Vs=Ve Adaptateur d'impédance	**Dérivateur**		 $i_c = C\frac{du_c(t)}{dt}$ $u_c = \frac{1}{C}\int i_c.dt$ $Vs = -RC\frac{dVe(t)}{dt}$	**Comparateur non inverseur double Seuils symétrique**	
Comparateur Simple seuil		$Vd = Ue - V_{ref}$ **Si Ue > Vref ↔ Vd>0** **alors** **Vs=+Vcc=+15V** Si Ue < Vref ↔ Vd<0 **alors** **Vs=-Vcc=-15V**	**Intégrateur**		$Vs = -\frac{1}{RC}\int Ve.dt$		

Dérivateur



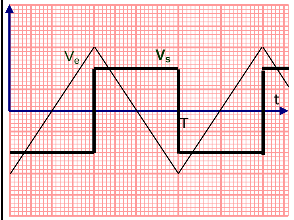
Expression

$$Vs = -RC\frac{dVe(t)}{dt}$$

Si Ve est une tension continue

$Vs = 0$

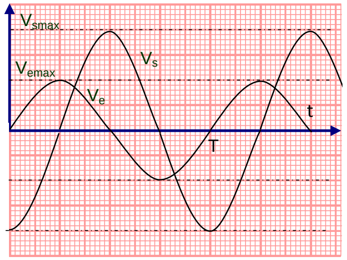
Si Ve est tension triangulaire alternative



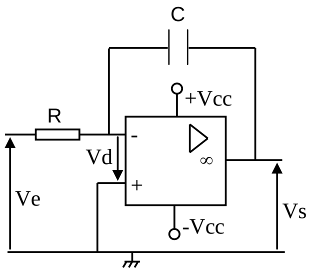
Si Ve est tension alternative sinusoïdale De la forme $Ve = V_{max} \sin \omega t$

$Vs = RC\omega V_{max} \sin(\omega t - \frac{\pi}{2})$

Soit $Av = \frac{Vs\,max}{Ve\,max} = RC\omega$



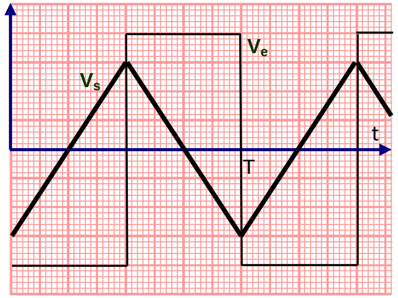
Intégrateur



Expression

$$Vs = -\frac{1}{RC}\int Ve.dt$$

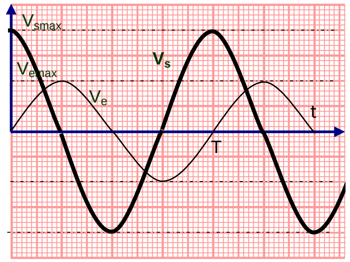
Si Ve est une tension rectangulaire alternative



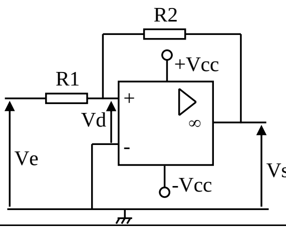
Si Ve est tension alternative sinusoïdale De la forme $Ve = V_{max} \sin \omega t$

$Vs = \frac{1}{RC\omega} V_{max} \sin(\omega t + \frac{\pi}{2})$

Soit $Av = \frac{Vs\,max}{Ve\,max} = \frac{1}{RC\omega}$



Comparateur non inverseur



$V^+ = \frac{R1}{R1+R2} * Vs + \frac{R2}{R1+R2} * Ve$

$V^- = 0$

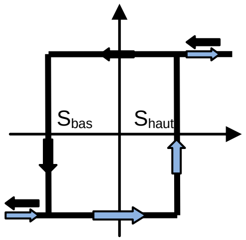
$Vd = V^+ - V^- = V^+ = \frac{R1}{R1+R2} * Vs + \frac{R2}{R1+R2} * Ve$

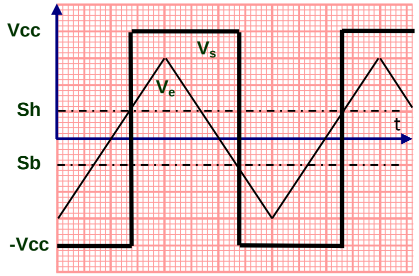
Les deux seuils de basculement sont:

Seuil haut **Sh** = $\frac{R1}{R2}$ **Vcc** Seuil **bas Sb** = **-** $\frac{R1}{R2}$ **Vcc**

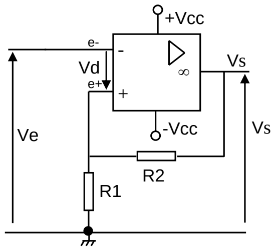
Seuil haut **Sh** = $\frac{R1}{R2}$ Vcc

Seuil bas **Sb** =- $\frac{R1}{R2}$ Vcc





Comparateur inverseur



$V^+ = \frac{R1}{R1+R2} * Vs$ $V^- = Ve$

$Vd = V^+ - V^- = \frac{R1}{R1+R2} * Vs - Ve$

Les deux seuils de basculement sont:

Seuil haut **Sh** = $\frac{R1}{R1+R2}$ **Vcc** Seuil **bas Sb** = **-** $\frac{R1}{R1+R2}$ **Vcc**

Sh = $\frac{R1}{R1+R2}$ **Vcc**

Sb= **-** $\frac{R1}{R1+R2}$ **Vcc**

